

$$1. 0.17T$$

$$F_c = F_B$$

$$mv^2/r = qvB$$

$$B = mv/qr =$$

$$1.67E-27 \times 3.2E6 / (1.602E-19 \times 0.2) = 0.1668$$

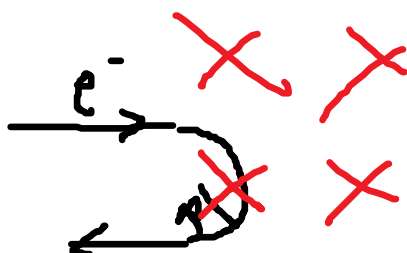
$$5. Vq = \text{energy} = 1/2mv^2$$

$$a) V_e = 1/2mv^2$$

b)  $W = Fscos\theta$  the force is always perpendicular to the velocity so no work is done at any instant.

c) the kinetic energy is constant in a magnetic field. magnetic fields never speed up a particle, they only deflect them.

d) circular - half circle if the edge is clear and constant



RHR +,  $F_{bp}$  -



e)  $qvB = mv^2/R \rightarrow m/e = BR/v$   
 $v = \sqrt{(2Ve/m)}$

$$m^2/e^2 = B^2R^2/(2Ve/m)$$
$$m/e = B^2R^2/(2V)$$